Hurricane Harvey – Summary

Working together, the U.S. Environmental Protection Agency and the Texas Commission on Environmental Quality continue to coordinate with local, state and federal officials to address the human health and environmental impacts of Hurricane Harvey and its aftermath, especially the water systems in the affected areas. The TCEQ has approximately 500 people and EPA has 2 people assisting in response to this natural disaster. [EPA had 263 people]

As part of this coordination, a Unified Command was established between the EPA, the TCEQ, the General Land Office, and the U.S. Coast Guard to oversee all emergency response efforts. This Unified Command is supported by three operational branches in Corpus Christi, Houston, and Port Arthur. In addition to the EPA, the TCEQ, the GLO, and the USCG, multiple agencies and groups are supporting each of the operational branches, including the Texas National Guard, 6th Civil Support Team; the Arkansas National Guard, 61st Civil Support Team; the Oklahoma Task Force 1; and the Texas State Guard Engineering Group. Branch personnel are working to continuously monitor water and wastewater systems, as well as assess spills or discharges as a result of the storm.

As of Friday October 6, the following information is available:

Drinking Water: To date, about 2,238 drinking water systems have been affected by Harvey. Of those: 2,196 systems are fully operational, 39 have boil-water notices, and 2 are shut down. The TCEQ is contacting remaining systems to gather updated information on their status. Assistance teams are in the field working directly with system operators to expedite getting systems back to operational status.

Wastewater and Sewage: The TCEQ has made contact with 1,743 wastewater treatment plants in the 58 counties within the Governor's Disaster Declaration. Of those, seven are inoperable in the affected counties. The agencies are aware that releases of wastewater from sanitary sewers are occurring as a result of the historic flooding and are actively working to monitor facilities that have reported spills. Additionally, the agencies are conducting outreach and providing technical guidance to all other wastewater facilities in flood-impacted areas. Assistance teams will continue to be deployed to work directly with system operators to expedite getting systems back to operational status.

On Sept. 25, 2017, the EPA provided written explanation to FEMA allowing proceeds from State Revolving Loan Funds to be used to address immediate recovery and future resiliency efforts in Texas. The EPA is also reviewing a Texas Water Development Board request that certain water infrastructure projects be exempt from American Iron and Steel requirements. The public interest waiver request from the TWDB is posted for the required 15-day public comment period which closes Oct. 13, 2017.

Flood Water: Water quality sampling will be focused on industrial facilities and hazardous waste sites. Floodwaters contain many hazards, including bacteria and other contaminants. Precautions should be taken by anyone involved in cleanup activities or any others who may be exposed to flood waters. These precautions include heeding all warnings from local and state authorities regarding safety advisories. In addition to the drowning hazards of wading, swimming, or driving in swift floodwaters, these waters can carry large objects that are not always readily visible that can cause injuries to those in the water. Other potential hazards include downed power lines and possible injuries inflicted by animals displaced by the floodwaters.

Critical Water Infrastructure: The TCEQ has made contact with the owners of the 340 dams in the impacted areas. There are 17 dams that have reported some type of damage. There have been no reports of downstream damage or loss of life.

Superfund Sites: The EPA and the TCEQ continue to get updates about the status of specific sites from the parties responsible for ongoing cleanup of the sites. The TCEQ has completed the assessment of all 17 state Superfund sites in the affected area. There were no major issues noted. The TCEQ will continue to monitor sites to ensure no further action is needed in regards to the storm.

All 43 Superfund NPL sites in the hurricane affected area have been assessed. Of these, 42 sites have been cleared. Post-hurricane Superfund site summaries based on preliminary data results are being published (www.epa.gov/hurricane-harvey) and quality assured data should be available in about 2 weeks.

The San Jacinto River Waste Pits site requires additional follow up. EPA received preliminary data from sediment samples collected by EPA's dive team from fourteen areas at the San Jacinto River Waste Pits Superfund site. Samples from one of the fourteen areas confirmed the protective cap had been damaged and the underlying waste material was exposed. The sample showed dioxins above 70,000 ng/kg. EPA recommended clean up level for the site is 30 ng/kg. Repairs to add armored rock to the cap was completed shortly after the sampling was conducted. All repairs are complete. EPA has directed the potentially responsible parties to collect an additional 7 samples near the damaged area and sampling should be completed this week. Sample results will be available in about 2 weeks.

EPA press release, Photo: Dive teams assessing San Jacinto Waste Pits cap, San Jacinto Waste Pits Areas of Interest Map.

San Jacinto Waste Pits EPA has posted quality assured data collected by the potentially responsible parties. Preliminary data discussed above will be released as soon as the quality assured data package is available. Quality assured data should be available in about 2 weeks. Data Validation Report (12 pages), Data - discolored area (LARGE 79.8 MB FILE, 502 pages), Data (LARGE 89.4 MB FILE, 564 pages).

U.S. Oil Recovery UPDATED 9/28/17 Summary, 400 N. Richey Data (57 pages), 400 N. Richey Data (Groundwater 47 pages), 400 N. Richey Data (136 pages), 200 N. Richey Data UPDATED 10/2/2017 (111 pages).

Highlands Acid Pits UPDATED 9/16 Summary, Data (PHILIS, 49 pages), Data (34 pages).
United Creosoting Company UPDATED 9/16 Summary, Data (19 pages), Data (40 pages).
Conroe Creosoting UPDATED 9/15 Summary, Data (21 pages), Data (PHILIS, 38 pages).
Brio UPDATED 9/22 Summary, Data (25 pages).
Tex Tin Summary, Data (2 pages), Data (35 pages).
Sheridan Disposal Services UPDATED 10/2/2017 Summary, Data (PHILIS, 42 pages), Data (30 pages), Data (18 pages).
Dixie Oil Processors Summary Data (27 pages).
Malone Service Summary, Data (2 pages), Data (25 pages).
Crystal Chemical Summary, Data (84 pages).
Star Lake Canal Summary, Data (29 pages).
MOTCO Summary, Data (23 pages).
Sol Lynn/Industrial Transformers Summary, Data (PHILIS, 60 pages).

Patrick Bayou here, Data (PHILIS, 32 pages).
Gulf States Utilities/North Ryan Street Summary, Data (PHILIS, 44 pages).
Sikes Disposal Pits Summary, Data(PHILIS, 56 pages), Data (31 pages).
Geneva Industries Summary, Data (PHILIS, 46 pages), Data (25 pages)..
Triangle Chemical Company Summary, Data (21 pages), Data (PHILIS, 46 pages).
EVR-Wood Treating/Evangeline Refining Summary, Data (27 pages), Data (PHILIS, 37 pages)..
Hart Creosoting Company Summary, Data (35 pages).
American Creosote - Deridder UPDATE 9/18 Summary, Data (26 pages).
Palmer Barge Line Summary, Data (25 pages).
Gulf Coast Vacuum Services Summary. Data (31 pages), Data (PHILIS, 15 pages).
Harris/Farley Street Summary, Data (30 pages).
D.L. Mudd, Inc. Summary, Data (23 pages).
Alcoa/Lavaca Bay Summary, Data (22 pages).
Jones Road Summary, Data (PHILIS, 39 pages).
French Unlimited Inc. Summary, Data (53 pages).
Gulfco Marine Maintenance Summary, Data (43 pages).
Mallard Bay Bulk Plant Summary, Data (25 pages).
Brine Service Company Summary, Data (42 pages).
Bailey Waste Disposal Summary, Data (56 pages).
Falcon Refinery Summary, Data (37 pages).
Rustin Foundry Summary, Data (12 pages).
PAB Oil & Chemical Services, Inc Summary, Data (60 pages).
Many Diversified Interest Summary, Data (24 pages).
State Marine Services of Port Arthur Summary, Data (25 pages).
South Cavalcade Street Summary, Data (29 pages), Data (4 pages).
North Cavalcade Street Summary, Data (PHILIS, 55 pages), Data (21 pages).
SBA Shipyard UPDATED 10/2/2017 here.
Jasper Creosoting Company Summary, Data (56 pages).
Petro-Chemical Systems Summary, Data (20 pages), Data (40 pages), Data (PHILIS, 57 pages), Data (39 pages).

Debris Management: The TCEQ has approved 187 Temporary Debris Management Sites in areas under the Federal or State Disaster Declaration designations. View a map of all Temporary Debris Management Sites at here.

TCEQ regional offices and local authorities are actively overseeing the siting and implementation of debris and waste management plans in the affected area. The EPA, the TCEQ, and Army Corps of Engineer field observers are visiting staging and landfills to ensure compliance with guidelines. EPA has participated in over 261 joint site observations and expects to conclude its activities next week. EPA observers have reported that TCEQ is providing onsite compliance assistance and follow up visits to confirm compliance with permits. TCEQ plans to conduct site visits as long as approved debris staging areas are processing debris and transferring debris to landfills. The EPA field observers have completed their assignment of assisting TCEQ in conducting the site observations. Future site observations have been transitioned to the state. EPA Community Liaisons have completed their assignment to provide federal and state guidance and best practices to thousands of individuals that are dealing with potential hazards in damaged or lost homes.

The TCEQ and EPA released 'Handling Debris During Natural Disasters' fact sheets in English Flyer, Spanish Flyer, Vietnamese Flyer.

Reconnaissance/Orphan Containers: The TCEQ continues to lead in monitoring facilities that have reported spills. Unified Command has completed initial hazmat reconnaissance and recovery activities associated with hurricane impacts. Orphan containers, which include drums and tanks, found floating in or washed up near waterways continue to be gathered, sorted and grouped by type, prior to shipping them off for safe, proper treatment and disposal. All branches of the Unified Command have collected over 1,088 orphan containers and have responded to approximately 266 reported spills or discharges. USCG and the Texas General Land Office will continue to complete Vessel Recovery activities.

Air Quality Monitoring: One of the many preparations for Hurricane Harvey included the EPA, the TCEQ, and other monitoring entities temporarily shutting down several air monitoring stations from the greater Houston, Corpus Christi, and Beaumont areas to protect valuable equipment from storm damage. Since then, state and local authorities have been working to get the systems up and running again as soon as possible. As of Friday, Sept. 29, the TCEQ's air monitoring network is 100 percent operational. All measured concentrations were well below levels of health concern.

Both TCEQ and EPA investigators have spent numerous hours, both day and night, monitoring neighborhoods and industrial fence lines with hand-held instruments, such as optical gas imaging cameras (OGIC), toxic vapor analyzers, summa canisters, and portable multi-gas monitors. The use of these tools allows for the most effective source identification for drifting volatile organic compound (VOC) plumes so that swift action can be taken to address the cause of these emissions. TCEQ investigators in the Houston, Corpus Christi, and Beaumont regional offices routinely conduct reconnaissance monitoring near industrial fence lines and adjacent communities. Reconnaissance monitoring has been conducted in these areas with increased frequency to identify potential emission sources. In furthering efforts to monitor storm impacted areas and address emission sources, the TCEQ conducted aerial surveys in the Houston and Beaumont areas using a helicopter equipped with an OGIC that can image VOCs and other hydrocarbons invisible to the eye and EPA's Airborne Spectral Photometric Environmental Collection Technology (ASPECT) plane conducted real-time sampling of potential emission targets. ASPECT completed flyovers of the facilities impacted by the hurricane on September 11, 2017. The EPA completed air quality analyses using their Trace Atmospheric Gas Analyzer (TAGA) mobile monitoring system on September 20, 2017. The TAGA conducted monitoring in Houston (9/5-7 and 9/10-12), Deer Park (9/14), Baytown (9/15), Sweeny and Texas City (9/17), Beaumont, Port Arthur, Victoria, and Point Comfort (9/18), and Corpus Christi (9/19-20). The results from continuous air monitors, hand-held instruments, ASPECT and TAGA have shown no levels of immediate health concern.

TAGA data summary reports for September 5, 6, 7, 10, 11, 12, 13 are available under 'documents' section of this website. Two TAGA mobile air monitoring buses began monitoring air quality around additional industrial sources in Texas. Additional TAGA reports for September 14, 15, 17, 18, 19, 20 are available under 'documents' section of this website.

EPA also sent its aerial surveillance aircraft to conduct a screening level assessment to evaluate unreported or undetected releases from facilities with Risk Management and/or Response Plans within the hurricane impacted areas. EPA's plane instrumentation measured 13 chemicals. The Airborne Spectral Photometric Environmental Collection Technology (ASPECT) aircraft found no exceedances of the Texas comparison values. The screening level results from ASPECT were compared to the ASPECT list of the TCEQ's short-term Air Monitoring Comparison Values and found no exceedances of the short-

term AMCVs. This report covers the flights dated from 4 September – 11 September 2017.

ASPECT Sept 11 Flight 2 report
ASPECT Sept 11 Flight 1 report
ASPECT Sept 10 Flight 2 report
ASPECT Sept 10 Flight 1 report
ASPECT Sept 9 Flight 2 report
ASPECT Sept 9 Flight 1 report
ASPECT Sept 8 Flight 2 report
ASPECT Sept 8 Flight 1 report
ASPECT Sept 7 Flight 2 report
ASPECT Sept 7 Flight 1 report
ASPECT Sept 6 Flight 2 report
ASPECT Sept 6 Flight 1 report
ASPECT Sept 5 Flight 1 report
ASPECT Sept 4 Flight 2 report
ASPECT Sept 4 Flight 1 report

EPA has completed its air monitoring activities related to Hurricane Harvey. Both TAGAs and the ASPECT have been demobilized.

Refineries/Fuel Waivers: EPA approved the request from the State of Texas to continue to waive requirements for fuels in Texas through the end of the month to help address the emergency circumstances in Texas from Hurricanes Harvey and Irma.

At the request of the State of Texas, EPA extended three No Action Assurance letters that are effective immediately to September 29, 2017. EPA will not pursue enforcement actions against tanker trucks for certain provisions of the Clean Air Act and parallel Texas regulations that relate to tank tightness and registration for tanker trucks. EPA will not pursue enforcement actions that relate to violations of provisions of the Clean Air Act for emissions of certain air pollutants from gasoline storage tanks during events known as “roof landings.” EPA will not pursue enforcement actions that relate to violations of provisions of the Clean Air Act that require the operation of these devices at bulk fuel terminals.

EPA provided a No Action Assurance (NAA) for the import of 255 power generators by the Yamaha Motor Corporation, U.S.A. (Yamaha), to be donated for use in communities impacted by Hurricanes Harvey and Irma in Texas and Florida, to assist in recovery efforts. These power generation units do not bear the emission control information labels required by the Clean Air Act.

Arkema Plant Fire Update:
On September 8, 2017, EPA announced that it had completed its response support to the Crosby Volunteer Fire Department and the Harris County Fire Marshal’s Office for the catastrophic event at Arkema. The EPA and the TCEQ provided direct support to incident commander Michael Sims of the Crosby Volunteer Fire Department and Chief Bob Royall of the Harris County Fire Marshal’s Office, who are leading a coordinated local, state, and federal effort as part of the Unified Command to control the fire at the Arkema facility in Crosby.

As a result of initial chemical fires while the facility was flooded, EPA has collected downstream surface water runoff samples at four locations outside the evacuation zone, near residential areas.

Six surface water runoff samples were collected on Friday, September 1, 2017 in the vicinity of the Arkema plant in Crosby, Texas. Surface water runoff results were less than the screening levels that would warrant further investigation. Each flood water sample was analyzed for volatile organic chemicals and semi-volatile organic chemicals likely to come from the Arkema plant. No volatile organic chemicals or semi-volatile organic chemicals were detected in the surface water runoff samples. Non-quantifiable and compounds not definitively identified are not reported. It is important to note that chemical analysis alone cannot be used as an indication of water safety. In a flood situation, there are multiple risk factors that can cause harm, industrial chemicals are only one of those risk factors. A copy of the data reports are attached.

EPA also sent its aerial surveillance aircraft to test resulting smoke from the fires at Arkema EPA's plane instrumentation is capable of measuring 78 different chemicals, including peroxides.

The Airborne Spectral Photometric Environmental Collection Technology (ASPECT) aircraft found no exceedances of the Texas comparison values. ASPECT conducted a screening level assessment to evaluate the unreported or undetected releases of hazardous materials or contaminants at the Arkema plant in Crosby, Texas from August 30, 2017 through September 7, 2017. The screening level results from ASPECT were compared to the ASPECT list of Texas Commission on Environmental Quality (TCEQ) short-term Air Monitoring Comparison Values (AMCVs) and found no exceedances of the short-term AMCVs. In addition, the ASPECT was requested to monitor for peroxide which was the source material for the fire. A copy of the ASPECT report is attached.

The TCEQ has an open investigation into the Arkema incident that will include an evaluation of any impacts due to the fires at the site. Additionally, after the final notifications are received, the TCEQ will evaluate the reported emissions events to determine compliance with applicable rules, permit provisions, and notification and reporting requirements. The TCEQ and Harris County Pollution Control are coordinating post-event monitoring, sampling, and complaint response activities. EPA has ordered Arkema to provide a detailed timeline of events and to respond within 10 days to questions about the handling of organic peroxides, which are combustible if not kept refrigerated, the amount of chemical materials, and the measures taken in advance to guard against flooding and loss of electricity. The U.S. Chemical Safety Board has initiated an investigation at the Arkema plant in Crosby.

For more information regarding Arkema, please visit
https://www.tceq.texas.gov/news/statement/statement-on-arkema-investigation